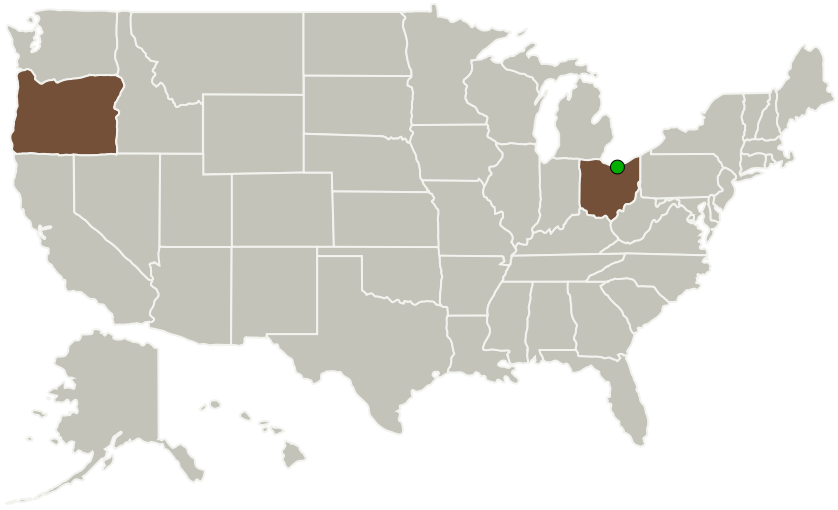
Advanced Capabilities Medical Suction Device, Phase II

Completed Technology Project (2015 - 2017)

Project Introduction

An innovative Microgravity Compatible Medical Suction Device (MCMSD) is proposed for the efficient aspiration and containment of bodily fluids and vomitus in a microgravity environment without the release of infectious agents. A design developed and tested in the Phase I work consisted of a reusable vacuum shell and disposable cartridges. Cartridges were capable of retaining bodily fluid simulants including saline solution, yogurt, cottage cheese, and a bovine blood/saline mixture with no release of fluids to the environment or vacuum system. The cartridge design has been advanced to include cartridges capable of retaining fluid mixtures with high solids content and direct collection of vomitus from affected individuals. The Phase II effort will build upon the highly successful feasibility demonstration resulting in the development of a prototype MCMSD consisting of a rigid vacuum shell and collapsible/disposable cartridges capable of gravity independent collection and retention of up to 1.3 liters of biological fluids/solids.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
UMPQUA Research Company	Lead Organization	Industry	Myrtle Creek, Oregon
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

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Table of Contents

Advanced Capabilities Medical Suction Device, Phase II

Completed Technology Project (2015 - 2017)

Primary U.S. Work Locations	
Ohio	Oregon

Project Transitions

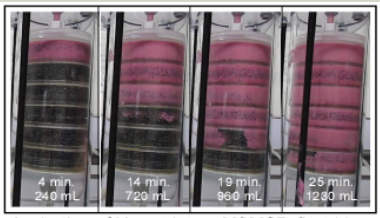
April 2015: Project Start

May 2017: Closed out

Closeout Documentation:

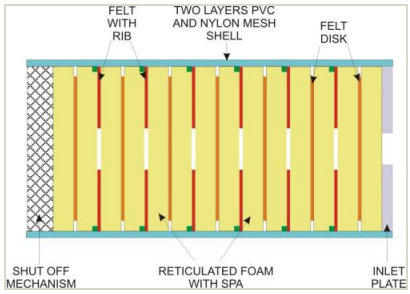
- Final Summary Chart*(https://techport.nasa.gov/file/137875)*

Images



Aspiration of Yogurt into a MCMSD Cartridge

Briefing Chart
Advanced Capabilities Medical Suction Device, Phase II *(https://techport.nasa.gov/image/131579)*



Final Summary Chart Image
Advanced Capabilities Medical Suction Device, Phase II Project Image *(https://techport.nasa.gov/image/130265)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

UMPQUA Research Company

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

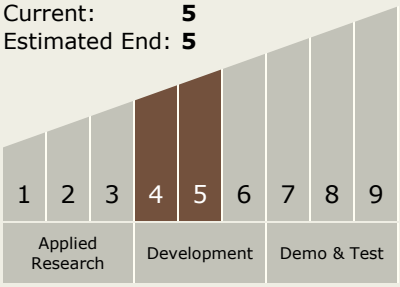
Carlos Torrez

Co-Investigator:

William Michalek

Technology Maturity (TRL)

Start: **4**
Current: **5**
Estimated End: **5**



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Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.3 Human Health and Performance
    - TX06.3.1 Medical Diagnosis and Prognosis

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System